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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
08/820,374	03/12/1997	Cheol-sung Hwang	SEC.314	2825
20987	7590	09/28/2005	EXAMINER	
VOLENTINE FRANCOS, & WHITT PLLC ONE FREEDOM SQUARE 11951 FREEDOM DRIVE SUITE 1260 RESTON, VA 20190			DICKEY, THOMAS L	
			ART UNIT	PAPER NUMBER
			2826	

DATE MAILED: 09/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

08/820,374

Applicant(s)

HWANG, CHEOL-SUNG

Examiner

Thomas L. Dickey

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 July 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 25-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 25-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 March 1997 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☒ Certified copies of the priority documents have been received in Application No. 08/560,087.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>9/23/2004</u> . | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

1. The preliminary amendment filed on 03/12/1997 has been entered.

Oath/Declaration

2. The oath/declaration filed on 03/12/1997 is acceptable.

Drawings

3. The formal drawings filed on 03/12/1997 are acceptable.

Priority

4. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been filed in parent Application No. 08/560,087, filed on 11/17/1995.

Information Disclosure Statement

5. The Information Disclosure Statement filed on 03/14/2005 has been considered.

Specification

6. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

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Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

A. Claims 25-27 are rejected under 35 U.S.C. 102(b) as being anticipated by MANIAR (5,185,689).

Maniar discloses a lower electrode of a capacitor in a semiconductor device, comprising a first layer 16 comprising TiN, a material that serves as a barrier against the diffusion of impurities from a lower substrate 12; a second layer 18 formed over the first layer 16, the second layer 18 comprising RuO₂, a material that is easy to pattern; and a third layer 20 formed over the second layer 18, the third layer 20 comprising a material (ruthenate) having low leakage current properties. Note figure 1, column 2 lines 65-68, and column 3 lines 38-40 of Maniar.

B. Claims 25-28 are rejected under 35 U.S.C. 102(e) as being anticipated by SUMMERFELT ET AL. (5,566,045).

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Summerfelt et al. discloses a lower electrode of a capacitor in a semiconductor device, comprising a first layer 52 comprising TiN, a material that serves as a barrier against the diffusion of impurities from a lower substrate 30; a second layer 34 formed over the first layer 52, the second layer 34 may comprise RuO₂ (see the table entry for layer 34), a material that is, by applicants' admission, easy to pattern; and a third layer 36 formed over the second layer 34, the third layer 36 may comprise Pt (see the table entry for layer 36), a material having, by applicants' admission, low leakage current properties. Note figure 19 and the table spanning columns 10-13 of Summerfelt et al.

C. Claims 25-28 are rejected under 35 U.S.C. 102(e) as being anticipated by NISHIOKA ET AL. (5,554,564).

Nishioka et al. discloses a lower electrode of a capacitor in a semiconductor device, comprising a first layer 46 comprising TiN, a material that serves as a barrier against the diffusion of impurities from a lower substrate 30; a second layer 48 formed over the first layer 46, the second layer 48 may comprise RuO₂ (see the table entry for layer 48), a material that is easy to pattern; and a third layer 38 formed over the second layer 48, the third layer 38 may comprise Pt (see the table entry for layer 38), a material having low leakage current properties. Note figure 5 and the table spanning columns 7-9 of Nishioka et al.

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Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas L Dickey whose telephone number is 571-272-1913. The examiner can normally be reached on Monday-Thursday 8-6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan J Flynn can be reached on 571-272-1915. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Thomas L. Dickey
Patent Examiner
Art Unit 2826
09/05